Amendments to the Drawings

The attached appendix include one replacement sheet of drawings, and replaces previously-filed figures 1A and 1B in their entirety.

REMARKS

Claims 1 – 3 and 5 – 26 are hereby presented for reconsideration and further examination in view of the foregoing amendments and following remarks. By this response and amendment, claims 1, 5 – 7, 9 – 11, 17, 19, 20, and 24 – 26 are amended, and claim 4 is cancelled without prejudice or disclaimer.

In the outstanding Office Action, the examiner indicated that claim 9 (and presumably claims 10 and 11 dependent therefrom) would be allowable if rewritten in independent form and to overcome rejections under 35 U.S.C. 112, second paragraph, and that claims 20 – 26 would be allowable if rewritten to overcome rejections under 35 U.S.C. 112, second paragraph. This indication is noted with appreciation. In the same Office Action, the Examiner: objected to the drawings under 37 CFR 1.83(a) and 37 CFR 1.84(p)(5); objected to the specification for failing to provide brief descriptions for all figures; rejected claims 1 – 26 under 35 U.S.C. 112, second paragraph, as being indefinite; rejected claims 1 – 8, 15, 18 and 19 under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,991,005 to Horikawa et al. (hereinafter referred to as "Horikawa"); and rejected claims 14, 16 and 17 under 35 U.S.C. 103(a) as being unpatentable over Horikawa in view of U.S. Patent No. 5,150,040 to Byrnes et al. (hereinafter referred to as "Byrnes"). By this Response and Amendment, claims 1, 5 – 7, 9 – 11, 17, 19, 20, and 24 – 26 are amended; replacement drawing sheets for figures 1A and 1B are provided; and, as amended, the indefiniteness, anticipation, and obviousness rejections of claims 1 – 3 and 5 – 26 are traversed.

The rejections to claim 4 have been obviated by its cancellation.

It is respectfully submitted that the above amendments do not introduce any new matter to

this application within the meaning of 35 U.S.C. §132. Support for the amendments to claim 1 and to the specification may be found, *inter alia,* at paragraph 0006 of the application as published. Support for the amendments to claim 9 may be found, *inter alia,* in FIG. 1A, where bottom membrane-like member M2 attaches to the inner assembly at a bottom *portion*, and a tip portion of the inner assembly can be seen extending past member M2, and at paragraphs 0013 and 0035 of the application as published. Support for the remaining amendments to the claims may be found in the claims as originally filed.

OBJECTIONS TO THE DRAWINGS

In the Outstanding Office Action, the Examiner:

objected to the drawings under 37 CFR 1.83(a) for failing to show the clamping rings of claim 11;

objected to the drawings under 37 CFR 1.83(a) for failing to show the configuration recited in claim 4;

objected to the drawings under 37 CFR 1.83(a) for failing to show the configuration of claim 9; and,

objected to the drawings under 37 CFR 1.84(p)(5) for failing to include reference numeral 11.

RESPONSE

By this response and amendment, Applicants have:

amended paragraph 0033 of the application as published to correct a typographical error

and thereby specify that elements 117A and 117B of figure 2 are "clamping rings;"

cancelled claim 4 without prejudice or disclaimer, in order to obviate the associated drawing objection;

amended claim 9 to better correspond with the configuration shown in FIG. 1A, where bottom membrane-like member M2 attaches to the inner assembly at a bottom *portion*, and where a tip portion of the inner assembly can be seen extending past the attachment point of member M2 to connect the inner assembly to a respective drive for movement along a vertical axis with respect to the outer assembly (see FIG. 1A, and paragraphs 0006 and 0028 of the application as published); and

provided a replacement drawing sheet for FIGs. 1A and 1B which includes reference numeral 11.

Applicants submit that the Examiner's objections to the drawings have been obviated by the above amendments.

OBJECTIONS TO THE SPECIFICATION

In the Outstanding Office Action, the Examiner objected to the specification for failing to provide separate brief descriptions for Figures 1A, 1B, 4A and 4B.

RESPONSE

By this response and amendment, Applicants have amended paragraph 0022 of the application as published to include specific and separate references to figures 1A and 1B; have

amended paragraph 0025 in make specific reference to figure 4A; and, have added a paragraph following paragraph 0025 to make specific reference to figure 4B.

Applicants submit that the Examiner's objection to the specification has been obviated by the above amendments.

REJECTIONS UNDER 35 U.S.C. 112, SECOND PARAGRAPH

In the outstanding Office Action, the Examiner rejected claims 1 – 26 under 35 U.S.C. 112, second paragraph, as being indefinite. The Examiner stated:

that the phrases "membrane-like member," "pin-like member," and "disk-like article" rendered all of the claims indefinite;

that the phrases "spring suspension arrangement" and the phrase "spring suspension with the first and second assemblies arranged in a coaxial relationship" as set forth in claims 1, 20, 24, 25, and 26 are unclear;

that the term "substantially" rendered claims 7 and 10 indefinite; and

that the term "the wedge element" in claim 19 lacks proper antecedent basis.

RESPONSE

By this response and amendment, Applicants have amended claims 1, 5, 6, 9 – 11, 17, 20, and 24 – 26 to replace the phrases "membrane-like member," "pin-like member," and "disk-like article" with the phrases "membrane member," "pin member," and "disk article," respectively. In determining the scope of the claims under these amended phrases, Applicants submit that, to

one skilled in the art, the phrase "membrane member" includes any object which resembles a membrane in shape, substance, or function as known in the art, or as described in the present application. Similarly, Applicants submit that, to one skilled in the art, the phrase "pin member" includes any object which resembles a pin in shape, substance, or function as known in the art, or as described in the present application. Similarly, Applicants submit that, to one skilled in the art, the term "disk article" includes any object which resembles a disk in shape, substance, or function, as known in the art, or as described in the present application.

Further, in regards to the Examiner's statement that the phrases "spring suspension assembly" and "spring suspension with the first and second assemblies arranged in a coaxial relationship" are unclear, Applicants have amended claim 1 to clearly specify that the second assembly is "driven for movement *along [an] axis of article movement*" and that the "first and second assemblies" are "arranged in a coaxial relationship *with respect to [this] axis of the article movement"* (Emphasis added). That is, the spring suspension arrangement of the present invention is formed by two assemblies (inner and outer assemblies 14A and 14B) arranged in a coaxial relationship, one inside the other, *with respect to the axis of article movement* (inner assembly 14A is clearly located inside the outer assembly 14B coaxial thereto). Of course, this axis of article movement is already clearly recited in claims 20, 24, 25, and 26, in which the assemblies are specified to be "vertically-oriented cylindrical assemblies arranged in a coaxial relationship one inside the other" and which specify that movement is "along the vertical axis." (Present Application, claims 20, 24, 25, and 26). In regards to this same statement, Applicants have amended claims 1, 20, and 24 – 26 to specify that the assemblies are attached to each other

by "first and second *membrane members*." The term "spring" in the phrase "spring suspension arrangement," therefore, can be seen in claims 1, 20, and 24 – 26 to correspond to membranes, such as a deformable membrane acting as a spring. Applicants note that the term "membrane-spring" is known and widely used in the art.

Further, in regards to the Examiner's statement that the term "substantially" renders claims 7 and 10 indefinite, Applicants have cancelled the term "substantially" from these claims. In determining the scope of the claims under these amendments, Applicants submit that, to one skilled in the art, the phrase "annular geometry" includes any geometry which resembles an annulus, with or without irrelevant differences from an ideal annulus, as known in the art, or as described in the present application. Similarly, Applicants submit that, to one skilled in the art, the phrase "have the same height" includes heights matched to within a relevant tolerance, as known in the art, or as described in the present application.

Further, in regards to the Examiner's statement that the term "the wedge element" in claim 19 lacks proper antecedent basis, Applicants have amended claim 19 accordingly to recite "a wedge element."

Applicants submit that the above amendments are fully responsive to all of the Examiner's rejections under 35 U.S.C. 112, second paragraph to claims 1 – 3 and 5 – 26. Accordingly, reconsideration and withdrawal of these rejections are requested.

Rejections of claim 4 have been obviated by the cancellation of this claim.

REJECTIONS UNDER 35 U.S.C. 102

In the outstanding Office Action, the Examiner rejected claims 1 – 8, 15, 18 and 19 under 35 U.S.C. 102(b) as being anticipated by Horikawa.

RESPONSE

Reconsideration and withdrawal of the rejections are requested.

For a reference to anticipate an invention, all of the elements of that invention must be present in the reference. The test for anticipation under section 102 is whether each and every element as set forth in the claim is found, either expressly or inherently, in a single prior art reference. *Verdegaal Bros. v. Union Oil Co. of California*, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987); MPEP §2131. The identical invention must be shown in as complete detail as is contained in the claim. *Richardson v. Suzuki Motor Co.*, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989); MPEP §2131.

By this Response and Amendment, Applicants respectfully traverse the Examiner's rejection since the cited prior art does not disclose, teach or suggest all of the features of independent claim 1 as amended.

Independent claim 1 teaches a "system for controlling an axial movement of an article" comprising, *inter alia,* "a spring suspension arrangement...comprising first and second assemblies arranged in a coaxial relationship *with respect to the axis of the article movement"* in which the first and second assemblies are "attached to each other by first and second membrane members arranged in a spaced-apart parallel relationship *along said axis of the article movement.*" (Present Application, Claim 1, emphasis added).

Horikawa is drawn to a stage apparatus comprising a support device for supporting a table, and a drive device for driving the table in the Z axis. (Horikawa, abstract). The position of the table relative to the stage is constrained through three coplanar flexures 60 "disposed around a circle, at regular angular intervals." (Horikawa, col. 12, lines 42 – 64; see also figures 7 and 8).

Horikawa fails to anticipate the present invention as recited in claim 1, as it does not disclose, teach, or suggest "first and second assemblies arranged in a coaxial relationship *with respect to the axis of the article movement*" in which the first and second assemblies are "attached to each other by first and second membrane members arranged in a spaced-apart parallel relationship *along said axis of the article movement*." (Present Application, Claim 1, emphasis added).

The Examiner likens elements 50 and 41/42 of Horikawa to the presently claimed first and second assemblies, and flexures 60 to the first and second membrane members. Applicants submit that flexures 60, even if *arguendo* interpreted as membrane members, are *not* arranged in a spaced-apart parallel relationship "along said axis of the article movement." In contradistinction, flexures 60 are coplanar in the x-y plane, while the table is driven in the Z axis (see Horikawa, figures 7 and 8). The present invention places its membrane members "in a spaced-apart parallel relationship *along said axis of the article movement*" in part to prevent tilting of the supported article, an advantage which is not addressed directly by the flexures of Horikawa.

Other distinctions between Horikawa and the present invention (as claimed in independent claim 1 and in those claims dependent therefrom) arise from the fundamental difference that Horikawa supports its table in a *planar*, and not *coaxial* manner.

Accordingly, at least for the reason that Horikawa fails to disclose, teach, or suggest "first and second assemblies arranged in a coaxial relationship *with respect to the axis of the article movement"* in which the first and second assemblies are "attached to each other by first and second membrane members arranged in a spaced-apart parallel relationship *along said axis of the article movement.*" (Present Application, Claim 1, emphasis added), applicants submit that Horikawa does not anticipate claim 1.

Applicants submit that claims 2, 3, 5 – 8, 15, 18, and 19 are allowable not only for their dependence from claim 1, but for the present of additional patentable features not anticipated by Horikawa. For example, multiple claims refer to "inner" and "outer" assemblies. Applicants traverse the Examiner's multiple statements on page 6 of the Outstanding Office Action that Horikawa teaches "inner" and "outer" assemblies in a coaxial relationship, and requests that the Examiner clarify how elements 50 and 41/42, separate from each other along the Z axis, constitute "inner" and "outer" assemblies.

Reconsideration and withdrawal of the rejection of claim 1 under 35 U.S.C. 102, and the rejections of claims 2, 3, 5 – 8, 15, 18, and 19 dependent therefrom, are respectfully requested.

REJECTIONS UNDER 35 U.S.C. 103

In the outstanding Office Action, the Examiner rejected claims 14, 16 and 17 under 35 U.S.C. 103(a) as being unpatentable over Horikawa in view of Byrnes.

RESPONSE

Reconsideration and withdrawal of the rejections are requested.

To establish a *prima facie* case of obviousness, the Examiner must establish: (1) that some suggestion or motivation to modify the references exists; (2) a reasonable expectation of success; and (3) that the prior art references teach or suggest all of the claim limitations. *Amgen, Inc. v. Chugai Pharm. Co.*, 18 USPQ2d 1016, 1023 (Fed. Cir. 1991); *In re Fine,* 5 USPQ2d 1596, 1598 (Fed. Cir. 1988); *In re Wilson*, 165 USPQ 494, 496 (CCPA 1970).

By this Response and Amendment, Applicants respectfully traverse the Examiner's rejection since the cited prior art does not disclose, teach or suggest all of the features of claim 1, from which claims 14, 16, and 17 depend.

Claim 1 recites "first and second assemblies arranged in a coaxial relationship *with respect to the axis of the article movement"* in which the first and second assemblies are "attached to each other by first and second membrane members arranged in a spaced-apart parallel relationship *along said axis of the article movement.*" (Present Application, Claim 1, emphasis added). As discussed above, Horikawa does not disclose, teach, or suggest these features.

Byrnes is drawn to a dual mode Z/Theta stage support, in which parallel, vertically

oriented, rigid lift pins bear the weight of a top-plate, and the lift pins are elevated together by the force of four matched pin lift levers. (Byrnes, Abstract).

Byrnes fails to cure the deficiencies of Horikawa, as it too does not disclose, teach, or suggest "first and second assemblies arranged in a coaxial relationship *with respect to the axis of the article movement"* in which the first and second assemblies are "attached to each other by first and second membrane members arranged in a spaced-apart parallel relationship *along said axis of the article movement.*" Byrnes does not disclose, teach, or suggest "membrane members," as recited in claim 1. Further, as in Horikawa, those support members which Byrnes *does* disclose (namely "lift pins"), even if *arguendo* equated with the "membrane members" of claim 1, are coplanar in the x-y plane, while the top plate is driven in the Z axis (see Byrnes, fig. 2, and col. 3 lines 17 – 49).

As the combination of Horikawa and Byrnes fails to disclose, teach, or suggest all of the features of claim 1, and thus of claims 14, 16, and 17 dependent therefrom, Applicants submit that the Examiner has failed to make a *prima facie* case of obviousness.

Reconsideration and withdrawal of the rejections under 35 U.S.C. 103 to claims 14, 16, and 17 are respectfully requested.

ALLOWABLE SUBJECT MATTER

In the outstanding Office Action, the examiner indicated that claim 9 (and presumably claims 10 and 11 dependent therefrom) would be allowable if rewritten in independent form and to overcome rejections under 35 U.S.C. 112, second paragraph, and that claims 20 – 26 would be

allowable if rewritten to overcome rejections under 35 U.S.C. 112, second paragraph.

RESPONSE

This indication is noted with appreciation.

Claims 9 – 11 depend from claim 1, which Applicants submit is in condition for allowance, for at least the reasons set forth above. Therefore, applicants submit that claims 9 – 11 are also in condition for allowance.

Applicants have amended claims 20, 24, 25, and 26 to overcome all rejections under 35 U.S.C. 112, second paragraph, and thus submit that these claims are in condition for allowance. As claims 21 – 23 depend from claim 20, applicants submit that these claims too are in condition for allowance.

CONCLUSION

In light of the foregoing, Applicants submit that the application is now in condition for allowance. If the Examiner believes the application is not in condition for allowance, Applicants respectfully request that the Examiner contact the undersigned attorney if it is believed that such contact will expedite the prosecution of the application.

Respectfully submitted,
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